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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,980	06/14/2005	Ikuo Nishimoto	981045.90011	9472
26707	7590	03/13/2006		EXAMINER
QUARLES & BRADY LLP				MATHEWS, ALAN A
RENAISSANCE ONE				
TWO NORTH CENTRAL AVENUE			ART UNIT	PAPER NUMBER
PHOENIX, AZ 85004-2391				2851

DATE MAILED: 03/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/538,980	NISHIMOTO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Alan A. Mathews	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-34 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 14 June 2005 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/14/05.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 4 - 6, 12, and 14 - 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Lemelson (U. S. Patent No. 3,573,045). Lemelson discloses in figure 2 and column 4, lines 38-67, and column 5, an optical apparatus 50 for exposing light on a surface area 44S of an object 44' having a curvature. Developed film 26' is the mask providing a pattern (picture) which undergoes temporal changes to collectively represent an image by being moved by drum 68. Lens 58 focuses the pattern on the object 44'. Motor 62 has a shaft 63 coupled to the object 44' via elements 64, 65, 66 and 72 for rotating the object in relation to the temporal changes in the pattern of light to expose the pattern (picture) of light over a portion of the surface area 44S of the object 44'. With respect to claims 5 and 15, one could arbitrarily divide the exposed area on the object into a first exposure area C and a second exposure area D which are not

overlapping. With respect to claims 6 and 16, the exposure contour would be the area on the developed film 26' having the pattern (picture).

3. Claims 1, 4 - 6, 12, 14 - 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Schiffman (U. S. Patent No. 4,102,734). Schiffman discloses in figure 1 and column 2, lines 45-68, and column 3, disclose an optical apparatus for exposing light on a surface area 12 of an object having a curvature. Element 3 is the mask (column 2, line 56) for providing a pattern of light which undergoes temporal changes to collectively represent an image. Projector 1 has a lens positioned to focus the pattern of light on the object. Motor 16 has a shaft coupled to the object for rotating the object in relation to the temporal changes in the pattern of light over a portion of the surface area of the object. With respect to claims 5 and 15, one could arbitrarily divide the exposed area on the object into a first exposure area C and a second exposure area D which are not overlapping.

4. Claims 28 - 32, and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Kanatake (U. S. Patent No. 6,130,742). Kanatake discloses in figures 1, 2, and 3, a spherical semiconductor device 30 attached to a holder 12 on a rotating annular member 11 which rotates continuously (see column 3, line 62). Mask 29 generates the pattern of light, which is directed to the curved surface of substrate 30. Since annular member 11 rotates continuously, the semiconductor device is rotated while being exposed to the pattern of light. With respect to claim 31, one could arbitrarily divide the exposed area on the semiconductor device into a first exposure area C and a second exposure area D which are not overlapping. It is also noted that

figure 4 and column 4, lines 42-67, disclose an embodiment with several masks, and a complete pattern for one substrate is completed when all masks are put together. With respect to claims 32 and 34, mask 29 is curved, and therefore has an exposure contour.

5. Claims 12, 14, 16, and 18 are rejected under 35 U.S.C. 102(bb) as being anticipated by Donadio III (U. S. Patent No. 6,027,063). Donadio III discloses in figure 21a and column 9, lines 47-67, and column 10, lines 1-24, a mask 126 which undergoes temporal changes as it moves along an arcuate path in the direction of 134. Tube 120 is the object that is rotated on mandrel 124 in relation to the temporal changes in the pattern of light from mask 126.

6. Claims 1- 6, 9 - 16, 19 - 25, 28 - 32, and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Mei et al. (U. S. Patent No. 6,529,262). Mei et al. '262 discloses in figure 1 a semiconductor sphere 10. Figure 3 discloses steps 26, 28, and 29, where step 28 moves the sphere before making a second exposure. Figure 4 and column 4, lines 48-67, and column 5, lines 1-35, discloses exposing the sphere 10 with three digital light processing mirror devices 36a, 36b, and 36c (or digital mirror devices), which produce patterns. Once the three patterns have been exposed on the sphere 10, the sphere moves to a new position. The patterns from 36a, 36b, and 36c would undergo temporal changes. Figure 8b and column 7, lines 6-18, disclose using pattern generator 36 and a lens 35 to exposure sphere 10, which is on a stage 93a that is **rotatable** about two axis by two motors 93b and 93c. This embodiment supports immediate and **continual** alignment of the pattern on the mirror device 36 with the sphere 10.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schiffman (U. S. Patent No. 4,102,734). Schiffman discloses the invention as recited in paragraph # 3 above except for specifically stating that the object is spherical. But column 5, lines 51-58, discloses that the device could be used for other arcuate surfaces, such as bowls, bells, jewelry and other collectibles having an arcuate surface. Bowls, in particular, could have a spherical surface. In fact, some bowls do have a spherical surface. And some types of jewelry could be spherical. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have the object in Schiffman be spherical in view of this teaching for the purpose of making the device useful for creating designs on a large variety of objects and thus making the exposure device more appealing to a wider group of potential purchasers of the equipment.

9. Claims 1-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukano et al. (U. S. Patent No. 6,453,458) in view of Mei et al. (U. S. Patent No. 6,498,643). Fukano et al. discloses in figure 7 and column 4, lines 18- 68, mask 30 making 3 orbits to expose semiconductor sphere 34. With respect to claims 7, 17, and 26, figure 8, discloses the particular

exposure contour. Fukano et al. does not disclose rotating sphere 34. Mei et al. '643 discloses in figure 1 rotating a semiconductor sphere instead of rotating the other equipment around the sphere. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to rotate the sphere in Fukano et al. instead of the rotating the mask in view of Mei et al. '643 for the purpose of making the equipment easier to operate.

*Conclusion*

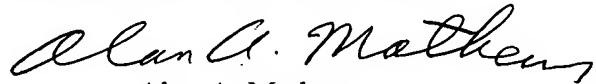
10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patents cited in the PTO-1449 are cited for the same reasons they were cited in Applicant's IDS.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan A. Mathews whose telephone number is (571) 272-2123. The examiner can normally be reached on Monday through Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2851

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alan A. Mathews  
Primary Examiner  
Art Unit 2851

AM